

REMARKS

Request for Reconsideration

Applicants have carefully considered the matters raised by the Examiner in the outstanding Office Action but remain of the opinion that patentable subject matter is present. Applicants respectfully request reconsideration of the Examiner's position based on the above amendments to the Specification and Claims and the following remarks.

Specification Amendments

Four typographical errors were noted in the Specification and have been corrected herein. With respect to the errors noted on pages 3 and 4, these are deemed to be obvious typographical errors when viewing Figure 8. With respect to the typographical error on page 9, support for this typographical error can be found on page 20, bottom paragraph. Specifically, it is the heat insulating member that has the heat deformation temperature limitation.

Claim Status and Amendments

Claims 1-7 had been examined and this amendment cancels Claim 2 and amends Claims 1 and 7. Thus, under examination are Claims 1, 3-7.

Claim 1 has been amended herein to recite that the cylindrical light transmitting base body is made of a glass material. Support for this amendment can be found in the paragraph bridging pages 15 and 16.

Claim 1 has also been amended herein to recite that the hardness A1 is greater than the hardness A2. Support for this amendment can be found in Claim 2 as well as in the Specification on page 8 in paragraph (2).

Claim 2 has been cancelled herein because the limitations that appeared in Claim 2 now appear in Claim 1.

Claim 7 has been amended herein to delete the word "bearing" and insert the phrase "heat insulating member". Support for this amendment can be found in the paragraph at the bottom of page 20.

Claim 7 Rejection

Claim 7 has been rejected under 35 USC 112, first paragraph, on the basis that the Application did not disclose the heat deformation temperature of the bearing.

The heat deformation temperature recited in Claim 7 refers to the heat insulating member and not the bearing. This fact is made clear in the paragraphs on page 20. Thus, Claim 7 has been made herein to delete the word "bearing" and insert the phrase "heat insulating member". Respectfully, Claim 7 is now fully supported by the Specification.

Rejection of Claims 1-4 based on Isogai

Claims 1-4 had been rejected as being anticipated by Isogai.

Invention

As disclosed in the Application on page 4, line 17 to page 5, line 3, glass base bodies for fixing rollers have good properties with respect to heat resistance, strength and transparency but have problems with respect to circular accuracy of the glass pipe and have a problem with surface

unevenness. Thus, glass pipe or a glass base body is not preferred.

In order to solve this problem, Applicants use a light transmitting elastic layer which includes a first and second elastic layer on the outer periphery of the glass pipe and insure that the outer or the second elastic layer is less hard than the inner or first elastic layer. This aspect has been brought out in the Application in the paragraph bridging pages 6 and 7.

In order to highlight this aspect of the present Invention, Claim 1 has been amended herein to recite that the cylindrical base body is made of a glass material and to recite that the hardness of the first elastic layer is greater than the hardness of the second elastic layer. The first elastic layer being the one which is against the glass base body while the second elastic layer is on the outer periphery of the first elastic layer.

Applicants submit that Claim 1 is patentable over Isogai because Isogai does not teach a base body made of glass, that the two elastic layers around the base body should have different hardness, or that the hardness A1 of

the inner elastic layer is greater than the hardness A2 of the outer elastic layer. These points will be dealt with in more detail below.

Isogai's Metal Core

Isogai teaches a fixing device for an image forming apparatus and specifically teaches the use of a fixing roller, labeled 21 in Figure 2, and a compression roller labeled 26 in Figure 2. Throughout Isogai's Application, he teaches that both the fixing roller and the compression roller have a metal core. This can first be seen in the Abstract at line 5 where it states that both the fixing roller and the compression roller have a metal core.

Each reference to the core material in Isogai in the Specification states that the core is metal, see Column 6, line 44, Column 8, line 28, Column 9, line 2, and Column 10, line 3.

Isogai also teaches that its pressure roller has a metal core, see Column 6, line 64.

Isogai also teaches an embodiment where the fixing element is a fixing belt. In this embodiment, Isogai also teaches that the core is made of metal, see Column 9, line 40.

Nowhere in Isogai does he teach that the core can be made of anything but metal. Furthermore, Isogai makes no suggestion or reference to the problem which was faced and solved in this Application namely, the poor circularity of the core or the uneven surface of the core which is a problem with glass cores. Since Isogai makes no reference to glass cores and because he makes no reference to the problems associated with glass cores, it is respectfully submitted that Isogai cannot teach nor suggest the Invention which is claimed in this Application.

Isogai does not teach the difference in hardnesses between the two layers

The Examiner had taken the position that the limitations of Claim 2 concerning the difference in hardnesses was taught in Isogai at Column 9, lines 21-23.

A reading of this section, however, makes no reference to differences in hardness between the two elastic layers 73a and 73b, rather, it simply teaches that the layers can have a range of hardness and a range of thickness. It does not say that one should be greater than or less than the other.

In fact, when viewing Figures 23-26 of Isogai, it can be seen that Isogai does not contemplate that the different elastic layers have different hardnesses or thicknesses. Figures 23-26 illustrate data relating to a fixing roller having a plurality of elastic layers. Isogai explains that the hardness of each elastic layer is between 10 to 80°, see Column 24, lines 53-56. Nowhere does Isogai state anything about varying the hardnesses of the different layers.

Isogai does not teach the inner layer is harder than the outer layer

Isogai teaches that the core can have multiple elastic layers, see, for example, Fig. 6 and layers 73a and 73b. Isogai also teaches that these elastic layers have a range of hardness and a range of thickness, see Column 9, lines 21-25.

The teaching in Column 9, lines 21-25, does not, however, say that the inner elastic layer should be harder than the outer elastic layer. It is understandable that Isogai does not teach that the inner elastic layer is harder than the outer elastic layer because Isogai also does not teach that any two elastic layers have different hardness.

Thus, Isogai is neither teaching nor suggesting that (i) the fixing member has a glass core, (2) that the elastic layers that surround the core have different hardnesses or (3) that the inner elastic layer is harder than the outer elastic layer. This is not surprising because Isogai is not directed to the problems faced and solved by the present Invention, namely, how to correct the circularity of the glass core and how to even out the unevenness of the surface of the glass core. Respectfully, the present Invention as claimed is patentable over the teachings of Isogai.

Rejection of Claims 5 and 6 based on Isogai and Mizunuma

Claims 5 and 6 have been rejected as being unpatentable over a combination of Isogai and Mizunuma. Mizunuma does not add the elements missing from Isogai. Mizunuma teaches a fixing roller and a pressure roller, both of which have metal cores, see Column 2, line 56, Column 3, line 20, Column 4, line 60, Column 5, line 4, and Column 6, lines 29 and 42. Thus, it is submitted that the present Invention is patentable over Isogai and Mizunuma taken alone or in combination.

Conclusion

Applicants respectfully submit that the Application is in condition for allowance and such action is respectfully requested. Should any extensions of time or fees be necessary in order to maintain this Application in pending

condition, appropriate requests are hereby made and authorization is given to debit account #02-2275.

Respectfully submitted,

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